Amendments to the Claims

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims

1. (Previously presented) A peptide consisting of at least one T-cell epitope of Japanese cypress pollen allergen Cha o 1, wherein each of said epitopes consists of:

(a) an amino acid sequence selected from the group consisting of Peptide #1-2 (SEQ ID NO:4), Peptide #1-4 (SEQ ID NO:6), Peptide #1-5 (SEQ ID NO:7), Peptide #1-6 (SEQ ID NO:8), Peptide #1-7 (SEQ ID NO:9), Peptide #1-8 (SEQ ID NO:10), Peptide #1-10 (SEQ ID NO:12), Peptide #1-11 (SEQ ID NO:13), Peptide #1-12 (SEQ ID NO:14), Peptide #1-14 (SEQ ID NO:16), Peptide #1-15 (SEQ ID NO:17), Peptide #1-16 (SEQ ID NO:18), Peptide #1-19 (SEQ ID NO:21), Peptide #1-20 (SEQ ID NO:22), Peptide #1-21 (SEQ ID NO:23), Peptide #1-22 (SEQ ID NO: 24), Peptide #1-23 (SEQ ID NO:25), Peptide #1-24 (SEQ ID NO:26), Peptide #1-25 (SEQ ID NO:27), Peptide #1-27 (SEQ ID NO:29), Peptide #1-30 (SEQ ID NO:32), Peptide #1-31 (SEQ ID NO:33), Peptide #1-32 (SEQ ID NO:34), Peptide #1-33 (SEQ ID NO:35), and Peptide #1-34 (SEQ ID NO:36) shown in Fig. 4 and has T-cell stimulating activity; or

(b) a part of said amino acid sequence and has T-cell stimulating activity equivalent to that of a peptide consisting of said amino acid sequence.

2.-4. (Canceled)

5. (Previously presented) A composition comprising the peptide of claim 1, as an active ingredient, and a pharmaceutically acceptable diluent or carrier.

6.-28. (Canceled)

29. (Previously presented) The peptide of claim 1, wherein each of said epitopes consists of an amino acid sequence selected from the group consisting of: Peptide #1-2 (SEQ ID NO:4), Peptide #1-4 (SEQ ID NO:6) , Peptide #1-5 (SEQ ID NO:7), Peptide #1-6 (SEQ ID NO:8), Peptide #1-7 (SEQ ID NO:9), Peptide #1-8 (SEQ ID NO:10), Peptide #1-10 (SEQ ID NO:12), Peptide #1-11 (SEQ ID NO:13),Peptide #1-12 (SEQ ID NO:14), Peptide #1-14 (SEQ ID NO:16), Peptide #1-15 (SEQ ID NO:17), Peptide #1-16 (SEQ ID NO:18), Peptide #1-19 (SEQ ID NO:21), Peptide #1-20 (SEQ ID NO:22), Peptide #1-21 (SEQ ID NO:23), Peptide #1-22 (SEQ ID NO:24), Peptide #1-23 (SEQ ID NO:25), Peptide #1-24 (SEQ ID NO:26), Peptide #1-25 (SEQ ID NO:27), Peptide #1-27 (SEQ ID NO:29), Peptide #1-30 (SEQ ID NO:32), Peptide #1-31 (SEQ ID NO:33), Peptide #1-32 (SEQ ID NO:34), Peptide #1-33 (SEQ ID NO:35) and Peptide #1-34 (SEQ ID NO:36) shown in Fig. 4.

30. (Previously presented) The peptide of claim 1, wherein each of said epitopes consists of an amino acid sequence selected from the group consisting of Peptide #1-2 (SEQ ID NO:4), Peptide #1-7 (SEQ ID NO:9), Peptide #1-8 (SEQ ID NO:10), Peptide #1-20 (SEQ ID NO:22), Peptide #1-22 (SEQ ID NO:24), Peptide #1-24 (SEQ ID NO:26), Peptide #1-32 (SEQ ID NO:34), Peptide #1-33 (SEQ ID NO:35), and Peptide #1-34 (SEQ ID NO:36) shown in Fig. 4.

31. (Previously presented) The peptide of claim 1, wherein each of said epitopes consists of an amino acid sequence selected from the group consisting of Peptide #1-7 (SEQ ID NO:9), Peptide #1-22 (SEQ ID NO:24), Peptide #1-32 (SEQ ID NO:34), and Peptide #1-33 (SEQ ID NO:35) shown in Fig. 4.

32. (Previously presented) The composition of claim 5, wherein said composition can reduce the symptoms of Japanese cypress pollinosis or cedar pollinosis in a patient.

33. (Previously presented) A composition comprising the peptide of claim 29 as an active ingredient, and a pharmaceutically acceptable diluent or carrier.

34. (Previously presented) A composition comprising the peptide of claim 30 as an active ingredient, and a pharmaceutically acceptable diluent or carrier.

35. (Previously presented) A composition comprising the peptide of claim 31 as an active ingredient, and a pharmaceutically acceptable diluent or carrier.

36. – 37. (Canceled)

38. (Previously presented) The peptide of claim 39, wherein said linker is Arg-Arg or Lys-Lys.

39. (Previously presented) A peptide consisting of at least two T-cell epitopes of Japanese cypress pollen allergen Cha o 1 and a linker sensitive to enzyme cleavage between each T-cell epitope, wherein at least one of said epitopes consists of:

(a) an amino acid sequence selected from the group consisting of Peptide #1-2 (SEQ ID NO:4), Peptide #1-4 (SEQ ID NO:6), Peptide #1-5 (SEQ ID NO:7), Peptide #1-6 (SEQ ID NO:8), Peptide #1-7 (SEQ ID NO:9), Peptide #1-8 (SEQ ID NO:10), Peptide #1-10 (SEQ ID NO:12), Peptide #1-11 (SEQ ID NO:13), Peptide #1-12 (SEQ ID NO:14), Peptide #1-14 (SEQ ID NO:16), Peptide #1-15 (SEQ ID NO:17), Peptide #1-16 (SEQ ID NO:18), Peptide #1-19 (SEQ ID NO:21), Peptide #1-20 (SEQ ID NO:22), Peptide #1-21 (SEQ ID NO:23), Peptide #1-22 (SEQ ID NO: 24), Peptide #1-23 (SEQ ID NO:25), Peptide #1-24 (SEQ ID NO:26), Peptide #1-25 (SEQ ID NO:27), Peptide #1-27 (SEQ ID NO:29), Peptide #1-30 (SEQ ID NO:32), Peptide #1-31 (SEQ ID NO:33), Peptide #1-32 (SEQ ID NO:34), Peptide #1-33 (SEQ ID

NO:35), and Peptide #1-34 (SEQ ID NO:36) shown in Fig. 4 and has T-cell stimulating activity; or

(b) a part of said amino acid sequence and has T-cell stimulating activity equivalent to that of a peptide consisting of said amino acid sequence.

40. (Previously presented) A composition comprising the peptide of claim 39, as an active ingredient, and a pharmaceutically acceptable diluent or carrier.

41. (Previously presented) A method for treating or preventing pollinosis caused by tree pollen in springtime, the method comprising administering the peptide of claim 1 to a patient that has pollinosis in the pollen-scattering season.

42. (Previously presented) A method for treating or preventing pollinosis caused by tree pollen in springtime, the method comprising administering the peptide of claim 39 to a patient that has pollinosis in the pollen-scattering season.

43. (Previously presented) A method of diagnosing pollinosis, the method comprising:

(a) providing a population of cells from an individual, the population of cells comprising lymphocytes;

(b) contacting said population of cells with a peptide of claim 1; and

(c) detecting stimulation of the lymphocytes in response to the peptide as an indication that the individual is susceptible to pollinosis caused by Japanese cypress pollen allergens or by tree pollen allergens that are immunologically cross-reactive with Japanese cypress pollen allergens.

44. (Previously presented) A method of diagnosing pollinosis, the method comprising:

(a) providing a population of cells from an individual, the population of cells comprising lymphocytes;

(b) contacting said population of cells with a peptide of claim 39; and

(c) detecting stimulation of the lymphocytes in response to the peptide as an indication that the individual is susceptible to pollinosis caused by Japanese cypress pollen allergens or by tree pollen allergens that are immunologically cross-reactive with Japanese cypress pollen allergens.

45. (Currently amended) An analog peptide consisting of a sequence identical to that of a wild-type peptide, except for substitution of one amino acid residue that mediate an interaction with a T cell receptor or that mediate an interaction with a major histocompatibility complex (MHC) class II molecule,

wherein the analog peptide has T-cell stimulating activity at least equivalent to that of the wild-type peptide, and

wherein the wild-type peptide is a peptide consisting of at least one T-cell epitope of Japanese cypress pollen allergen Cha o 1, each of said epitopes consisting of:

(a) an amino acid sequence selected from the group consisting of Peptide #1-2 (SEQ ID NO:4), Peptide #1-4 (SEQ ID NO:6), Peptide #1-6 (SEQ ID NO:8), Peptide #1-7 (SEQ ID NO:9), Peptide #1-8 (SEQ ID NO:10), Peptide #1-10 (SEQ ID NO:12), Peptide #1-11 (SEQ ID NO:13), Peptide #1-12 (SEQ ID NO:14), Peptide #1-14 (SEQ ID NO:16), Peptide #1-15 (SEQ ID NO:17), Peptide #1-16 (SEQ ID NO:18), Peptide #1-19 (SEQ ID NO:21), Peptide #1-20 (SEQ ID NO:22), Peptide #1-21 (SEQ ID NO:23), Peptide #1-23 (SEQ ID NO:25), Peptide #1-24 (SEQ ID NO:26), Peptide #1-27 (SEQ ID NO:29), Peptide #1-30 (SEQ ID NO:32), Peptide #1-31 (SEQ ID NO:33), Peptide #1-32 (SEQ ID NO:34), Peptide #1-33 (SEQ ID NO:35), and Peptide #1-34 (SEQ ID NO:36) shown in Fig. 4 and has T-cell stimulating activity; or

(b) a part of said amino acid sequence and has T-cell stimulating activity equivalent to that of a peptide consisting of said amino acid sequence.

46. (Currently amended) The analog peptide of claim 45, wherein the analog peptide stimulates the T cell to produce an amount of interferon-γ [[at least equivalent to]] greater than that stimulated by the wild-type peptide.

47. (Previously presented) The analog peptide of claim 45, wherein the analog peptide consists of an amino acid sequence of SEQ ID NO: 89 or SEQ ID NO: 90.